

AMENDMENT TO THE CLAIMS

1. (Currently Amended) Solid oxide fuel cell with internal reforming capability comprising:

a cathode;

an anode;

an electrolyte disposed between the anode and the cathode;

a cathodic current collector;

an anodic current collector, the cathode, anode and electrolyte disposed between the cathodic current collector and the anodic current collector;

a cathodic interconnect electrically connecting the cathode to the cathodic current collector, the cathodic interconnect comprising a metallic substrate providing a flow field between the cathode and the cathodic current collector for an oxygen containing gas flow over at least a portion of the cathode; and

an anodic interconnect electrically connecting the anode to the anodic current collector, the anodic interconnect comprising a metallic substrate providing a flow field between the anode and the anodic current collector for a fuel gas flow over at least a portion of the anode and a catalytic coating on the metallic substrate comprising a catalyst for catalytic conversion of ~~the~~ a hydrocarbon fuel in the fuel gas to a hydrogen rich reformat;

wherein the metallic substrate of the anodic interconnect has an offset plate fin or dimple configuration and includes a first uncoated portion electrically connected to the anode, a second uncoated portion electrically connected to the anodic current collector, and a spacing portion extending between the first and second uncoated portions for spacing the anode from the anodic current collector and forming the space for the fuel gas flow.

2. (Cancelled)

3. (Original) Solid oxide fuel cell as in claim 1 wherein the metallic substrate of the anodic interconnect is formed of high temperature stainless steel/alloy plate.

4. (Cancelled)

5. (Currently Amended) Solid oxide fuel cell as in claim 1 wherein the metallic substrate of the anodic interconnect includes a plurality of rows of fins having a square wave shaped cross-section, adjacent rows of the plurality of rows of fins being offset from one another.
6. (Original) Solid oxide fuel cell as in claim 1 wherein at least a portion of the anode is unobstructed by the anodic interconnect.
7. (Original) Solid oxide fuel cell as in claim 1 wherein the catalytic coating further comprises a catalyst support and a catalyst promoter.
8. (Original) Solid oxide fuel cell as in claim 1 wherein the catalyst is a steam reforming catalyst.
9. (Original) Solid oxide fuel cell as in claim 8 wherein the steam reforming catalyst comprises a transition metal or a precious metal.
10. (Currently Amended) Solid oxide fuel cell as in claim 8 wherein the steam reforming catalyst comprises a transition metal or a precious metal, and wherein the catalytic coating further comprises a the catalyst support comprising ~~comprises~~ a refractory metal oxide, and a catalyst the promoter comprising ~~comprises~~ an alkali metal oxide or an alkaline earth metal oxide.
11. (Original) Solid oxide fuel cell as in claim 1 wherein the electrolyte is a solid electrolyte.
12. (Original) Solid oxide fuel cell as in claim 11 wherein the solid electrolyte comprises yttria-stabilized zirconia.
13. (Withdrawn) A catalyzed anodic interconnect for electrically connecting an anode and an anodic current collector in a fuel cell comprising a metallic substrate providing space between the anode and the anodic current collector for fuel gas flow over at least a portion of the anode and a catalytic coating on the metallic substrate comprising a catalyst for catalytic conversion of hydrocarbon fuel in the fuel gas to hydrogen rich reformat.

14. (Withdrawn) A catalyzed anodic interconnect as in claim 13 wherein the catalyst is a steam reforming catalyst.

15. (Withdrawn) Method for operating a solid oxide fuel cell comprising feeding an oxygen containing gas adjacent a cathode in the solid oxide fuel cell and feeding a hydrocarbon fuel through a fuel flow path in the solid oxide fuel cell, the fuel path bounded at least in part by an anode, an anodic current collector, and a catalyzed anodic interconnect electrically connecting the anode and the anodic current collector, the catalyzed anodic interconnect comprising a metallic substrate providing space between the anode and the anodic current collector for fuel gas flow over at least a portion of the anode and a catalytic coating on the metallic substrate comprising a catalyst for catalytic conversion of the hydrocarbon fuel in the fuel gas to hydrogen rich reformat.

16. (Withdrawn) A catalyzed anodic interconnect as in claim 15 wherein the catalyst is a steam reforming catalyst.

17. (Withdrawn) Method for making a catalyzed anodic interconnect for use in a solid oxide fuel cell comprising:

providing a metallic substrate configured to provide space between an anode and an anodic current collector in the solid oxide fuel cell for fuel gas flow over at least a portion of the anode;

pretreating a surface of the metallic substrate to increase the hydrophilicity of the metallic substrate;

coating the metallic substrate with a catalytic coating comprising a catalyst for catalytic conversion of hydrocarbon fuel to hydrogen rich reformat.

18. (Withdrawn) Method as in claim 17 wherein the step of coating comprises coating the metallic substrate with an aqueous mixture comprising water, a catalyst precursor, a catalyst support, a catalyst promoter, and a binder, drying the aqueous mixture on the metallic substrate, and thereafter calcining the metallic substrate.

19. (Withdrawn) Method as in claim 17 wherein the step of coating comprises coating the metallic substrate with an aqueous mixture comprising water, a catalyst support, a catalyst promoter, and a binder, drying the aqueous mixture on the metallic substrate, calcining the coated metallic substrate, applying to the coated metallic substrate a solution including a catalyst precursor, and drying the solution on the coated metallic substrate, and calcining the coated metallic substrate to convert the catalyst precursor to the catalyst.

20. (Withdrawn) Method as in claim 17 wherein the catalyst is a steam reforming catalyst.